

COMMUNICABLE DISEASE CENTER

POLIOMYELITIS

S U R V E I L L A N C E

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U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE

SUMMARY

A total of 62 cases of poliomyelitis, 57 paralytic, have been reported during the 6 week period ending November 23, 1963. The only States reporting more than five cases during this period were Florida (20), where an outbreak occurred in Duval County (Jacksonville), and Virginia (6), where 3 cases occurred in Goochland County. Accounts of these outbreaks are presented in Section II.

The cumulative total of poliomyelitis cases in the United States thus far in 1963 continues to remain well below that reported for a comparable period in any previous year.

Information on 230 of the 343 cases of paralytic poliomyelitis occurring thus far in 1963 is summarized in Section III. Of the 220 paralytic cases with vaccination status known, 65% were unvaccinated whereas 20% had received 3 or more doses of inactivated vaccine. A listing of cases occurring within 30 days of oral vaccination in 1963 is presented in Section IV.

Of 112 poliovirus isolations reported thus far in 1963, 75.9% are Type I, 5.4% are Type II, and 18.7% are Type III. These proportions are comparable to those of previous years as shown in Section VI.

A tabulation of the 425 non-polio enterovirus isolates reported to the Poliomyelitis Surveillance Unit thus far in 1963 is presented in Section V. A high proportion (22%) of Coxsackie B₁ isolates have been reported.

I. CURRENT POLIOMYELITIS MORBIDITY TRENDS

During the six-week period ending November 23, 1963, a total of 62 cases of poliomyelitis (57 paralytic) were reported. The greatest number of cases were reported from Florida where 20 cases have occurred in Duval County (Jacksonville). This outbreak is described in Section II. Virginia accounted for 6 cases, 3 occurring in Goochland County among persons living in close proximity. This is also discussed in Section II. There were no other clusters of cases during this six-week period.

The cumulative totals for 1963 and the preceding four years are presented below. The current total continues to be less than one-half the total for any previous year.

Poliomyelitis (Cumulated Weekly) through the 47th Week for 1963 and the Past Four Years

| | <u>1963</u> | <u>1962</u> | <u>1961</u> | <u>1960</u> | <u>1959</u> |
|-----------|-------------|-------------|-------------|-------------|-------------|
| Paralytic | 343 | 653 | 822 | 2137 | 5387 |
| Total | 401 | 826 | 1262 | 3065 | 8134 |

The six-week totals for the current year and the past four years, presented in the following table, also reveals the current incidence well below any previous year.

Six Week Totals (42nd through 47th Week) for 1963 and the Past Four Years

| | 1963 | 1962 | 1961 | 1960 | 1959 |
|-----------|------|------|------|------|------|
| Paralytic | 57 | 120 | 161 | 385 | 872 |
| Total | 62 | 151 | 235 | 525 | 1178 |

II. STATE REPORTS

A. Florida

Twenty-one cases of poliomyelitis, including 20 paralytic cases, have been reported from Duval County (Jacksonville) thus far in 1963 by Dr. C.M. Sharp, Assistant State Health Officer, Florida State Board of Health. There have been 3 deaths. Type 1 poliovirus has been isolated from 15 cases including the 3 fatalities. Onset dates and paralytic status of the cases are shown graphically on page 6. Following the occurrence of two cases in July, there were no cases until September 29. Eighteen additional cases occurred during the ensuing 6 week period. Additional suspect cases are under surveillance in Jacksonville.

Geographically, the cases were widely scattered throughout both the city of Jacksonville and Duval County. Eighteen of the twenty-one cases occurred among Negroes. Of the 17 cases with known immunization history, all but 2 were inadequately immunized. The age distribution of the cases is of interest in that 18 of the 21 cases occurred in preschool age children and of this group, thirteen cases occurred in children 2 years of age or younger. The cases are shown by age and inactivated vaccine status in the following table:

Poliomyelitis by Age and Inactivated Vaccine Status*

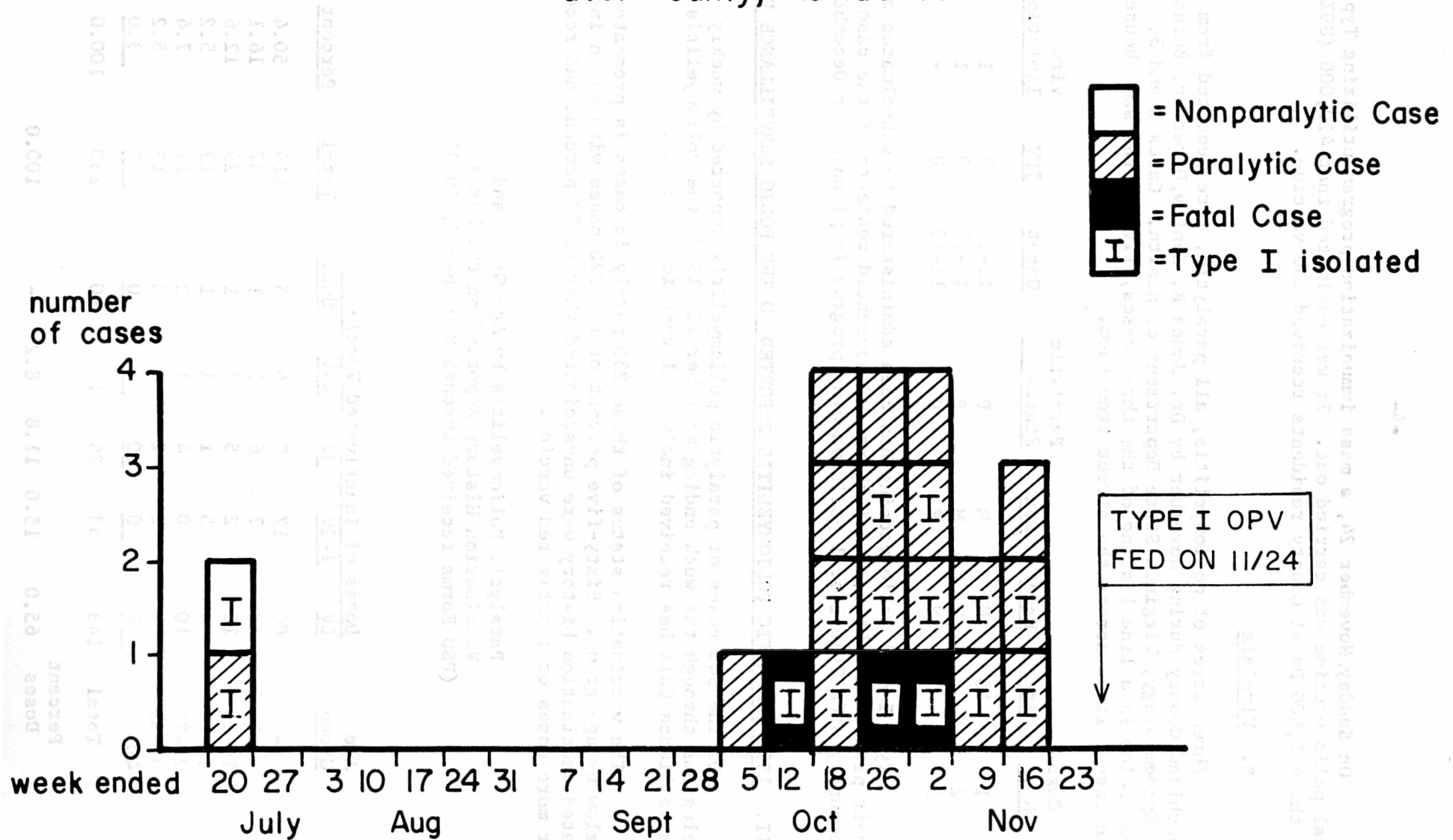
Duval County, Florida (Jacksonville) 1963

| Age Group | Doses of Vaccine | | | | | Total |
|-----------|------------------|------|----|----|-----|-------|
| | 0V | 1-2V | 3V | 4+ | Unk | |
| <1 | 1 | 0 | 0 | 0 | 0 | 1 |
| 1 | 4 | 0 | 0 | 1 | 0 | 5 |
| 2 | 5 | 1 | 0 | 0 | 1 | 7 |
| 3 | 1 | 1 | 1 | 0 | 1 | 4 |
| 4 | 0 | 0 | 0 | 0 | 1 | 1 |
| 5-9 | 0 | 0 | 0 | 0 | 1** | 1 |
| 10-19 | 0 | 0 | 0 | 1 | 0 | 1 |
| 20+ | 1 | 0 | 0 | 0 | 0 | 1 |
| Total | 12 | 2 | 1 | 2 | 4 | 21 |

* None of these cases are known to have received oral polio vaccine

** Non-paralytic case

POLIOMYELITIS - By Week of Onset Duval County, Florida 1963



On Sunday, November 24, a mass immunization program utilizing Type I oral polio vaccine was carried out. It was estimated that 420,000 (89%) of the 470,000 Duval County residents received the vaccine.

B. Virginia

Three cases of poliomyelitis, all paralytic, were reported from Goochland County during November by Dr. James B. Kenley, Director, Bureau of Epidemiology, Virginia State Department of Health. Cases 2 and 3, show below in a line listing of the three cases, live in the same household and case 1 lives across the street from them.

| <u>Case No.</u> | <u>Age</u> | <u>Race</u> | <u>Sex</u> | <u>Paralytic Status</u> | <u>Onset</u> | <u>IPV</u> | <u>Virus Isolation</u> |
|-----------------|------------|-------------|------------|-------------------------|--------------|------------|------------------------|
| 1 | 15 | N | M | P | 11-11 | 3 | I |
| 2 | 8 | N | M | P | 11-12 | 0 | I |
| 3 | 7 | N | F | P | 11-19 | 0 | - |

Type I oral polio vaccine has been administered to schoolmates and their preschool siblings, neighbors and household contacts of the cases. A community wide Type I oral polio vaccine program is planned for December 8.

III. 1963 PARALYTIC POLIOMYELITIS REPORTED TO THE POLIO SURVEILLANCE UNIT

Of the 343 cases of paralytic poliomyelitis reported by weekly telegrams through the week ending November 23, 1963, the Poliomyelitis Surveillance Unit has received individual case forms on 230.

The vaccination status of these 230 paralytic cases is presented below by age group. Sixty-five percent of the 220 cases with known inactivated vaccination history were unvaccinated whereas 20 percent had received 3 or more doses of inactivated vaccine.

Paralytic Poliomyelitis by Age Group and Vaccination History Reported on PSU Forms (PSU Forms received through November 2, 1963)

| <u>Age Group</u> | <u>Doses of Inactivated Vaccine</u> | | | | | <u>Total</u> | <u>Percent</u> |
|------------------|-------------------------------------|-------------|-----------|------------|-------------|--------------|----------------|
| | <u>0V</u> | <u>1-2V</u> | <u>3V</u> | <u>4+V</u> | <u>Unk.</u> | | |
| 0-4 | 80 | 17 | 8 | 6 | 5 | 116 | 50.4 |
| 5-9 | 18 | 7 | 6 | 5 | 1 | 37 | 16.1 |
| 10-14 | 18 | 2 | 5 | 3 | 1 | 29 | 12.6 |
| 15-19 | 4 | 5 | 1 | 1 | 1 | 12 | 5.2 |
| 20-29 | 10 | 0 | 4 | 1 | 2 | 17 | 7.4 |
| 30-39 | 7 | 2 | 2 | 1 | 0 | 12 | 5.2 |
| 40+ | <u>6</u> | <u>0</u> | <u>0</u> | <u>1</u> | <u>0</u> | <u>7</u> | <u>3.0</u> |
| Total | 143 | 33 | 26 | 18 | 10 | 230 | 100.0 |
| Percent Doses | 65.0 | 15.0 | 11.8 | 8.2 | - | 100.0 | |

Through November 2, 1963, the Poliomyelitis Surveillance Unit has received the results of virological studies performed on specimens from 131 (52%) of the 250 total cases of poliomyelitis reported on PSU forms. Poliovirus was isolated from 112 (85.5%) of the 131 cases. Of these, 85 are Type I, 6 are Type II, and 21 are Type III polioviruses.

Sixty-nine percent of the Type I isolates have been reported from Alabama, Michigan, Pennsylvania and Virginia. Areas in each of these states have had Type I outbreaks during the current year. Isolations are shown by State in the following table:

| State | Poliovirus Isolations | | | Total |
|----------------|-----------------------|-----|------|-------|
| | I | II | III | |
| Alabama | 6 | 0 | 0 | 6 |
| Arizona | 2 | 0 | 0 | 2 |
| California | 1 | 0 | 4 | 5 |
| Connecticut | 0 | 1 | 0 | 1 |
| Florida | 1 | 0 | 1 | 2 |
| Georgia | 0 | 0 | 2 | 2 |
| Idaho | 1 | 0 | 0 | 1 |
| Illinois | 5 | 0 | 0 | 5 |
| Indiana | 1 | 0 | 0 | 1 |
| Louisiana | 2 | 0 | 2 | 4 |
| Maine | 0 | 0 | 1 | 1 |
| Massachusetts | 1 | 0 | 1 | 2 |
| Michigan | 13 | 0 | 1 | 14 |
| Minnesota | 0 | 0 | 1 | 1 |
| Mississippi | 2 | 0 | 0 | 2 |
| New Jersey | 1 | 0 | 0 | 1 |
| New Mexico | 1 | 0 | 0 | 1 |
| New York | 0 | 1 | 0 | 1 |
| Ohio | 0 | 0 | 2 | 2 |
| Pennsylvania | 31 | 1 | 1 | 33 |
| South Carolina | 1 | 1 | 0 | 2 |
| Tennessee | 3 | 0 | 1 | 4 |
| Texas | 1 | 0 | 2 | 3 |
| Virginia | 9 | 0 | 0 | 9 |
| Washington | 1 | 1 | 0 | 2 |
| West Virginia | 0 | 1 | 2 | 3 |
| Wisconsin | 2 | 0 | 0 | 2 |
| Total | 85 | 6 | 21 | 112 |
| Percent | 75.9 | 5.4 | 18.7 | 100.0 |

IV. ROUTINE SURVEILLANCE

A. Cases Occurring within 30 Days Following Inactivated Vaccine

Two cases of paralytic poliomyelitis, occurring within 30 days following inactivated vaccine, have been reported to the Poliomyelitis Surveillance Unit during 1963. A line listing is presented below:

| <u>State</u> | <u>County</u> | <u>Age</u> | <u>Sex</u> | <u>Onset</u> | <u>Date Vacc.</u> | <u>Intv. (Days)</u> | <u>Doses IPV</u> | <u>Paralytic Status</u> |
|--------------|---------------|------------|------------|--------------|-------------------|---------------------|------------------|-------------------------|
| Michigan | Monroe | 3 | F | 4-28 | 4-23 | 5 | 4 | P |
| Virginia | Dinwiddie | 1 | F | 9-7 | 8-28 | 10 | 1 | P |

B. Cases Occurring within 30 Days Following Oral Vaccine

Through November 2, 1963, 29 cases of poliomyelitis (27 paralytic), occurring within 30 days following oral vaccine, have been reported to the Poliomyelitis Surveillance Unit on individual case forms.

Three of the 29 cases, all paralytic and all following Type I vaccine, have been reported since the last issue of the PSU Report (No. 281, October 28, 1963). All 29 cases are summarized below in a line listing of under 30-day OPV cases reported to the Poliomyelitis Surveillance Unit during 1963. These cases are also presented in a table following the line listing by age group and type of vaccine received.

Those cases that occurred in epidemic areas are indicated by an asterisk. Excluding cases occurring in epidemic areas, 5 of the 8 cases receiving Type I oral vaccine and 7 of the 11 cases receiving Type III oral vaccine were 20 years of age or older.

| <u>State</u> | <u>County</u> | <u>Age</u> | <u>Sex</u> | <u>Onset</u> | <u>Date Fed</u> | <u>Intv. (Days)</u> | <u>Type Fed</u> | <u>Doses IPV</u> | <u>Para. Status</u> |
|--------------|---------------|------------|------------|--------------|-----------------|---------------------|-----------------|------------------|---------------------|
| Calif. | Sacramento | 38 | M | 1-24 | 1-13 | 11 | III | 0 | P |
| Calif. | Los Angeles | 34 | M | 3-1 | 2-9 | 20 | III | 0 | P |
| Calif. | San Francisco | 21 | M | 5-28 | 5-20 | 8 | III | Unk. | P. |
| Calif. | Shasta | 2 | M | 3-26 | 3-10 | 16 | III | 3 | P |
| Calif. | Kings | 10 mos. | M | 4-1 | 3-10 | 22 | III | 0 | P |
| Idaho | Ada | 47 | M | 3-12 | 3-10 | 2 | I | 0 | P |
| La. | Evangeline | 10 | M | 2-14 | 2-10 | 4 | I | Unk. | P |
| La. | Rapides | 4 | M | 4-14 | 4-7 | 7 | I | 5 | P |
| Maine | Kennebec | 43 | M | 5-8 | 4-21 | 17 | I | 0 | P |
| Mass. | Middlesex | 27 | F | 6-7 | 5-19 | 19 | III | 4 | P |
| Mich. | Kent* | 1 | F | 9-23 | 9-21 | 2 | I | Unk. | P |
| Minn. | Anoka | 24 | M | 9-15 | 9-1 | 14 | I | 3 | P |
| Minn. | Hennepin | 19 | M | 5-27 | 5-13 | 14 | III | 0 | P |
| Pa. | Delaware* | 3 | F | 10-1 | 9-29 | 2 | I | 2 | P |
| Pa. | Schuylkill | 30 | M | 6-8 | 5-25 | 14 | III | 0 | P |

* Epidemic area

(continued on next page)

| State | County | Age | Sex | Onset | Date Fed | Intv. (Days) | Type Fed | Doses IPV | Para. Status |
|-------|-------------|---------|-----|-------|----------|--------------|----------|-----------|--------------|
| Pa. | Perry* | 12 | M | 6-24 | 6-22 | 2 | I | 0 | P |
| Pa. | Perry* | 5 | M | 6-23 | 6-22 | 1 | I | 0 | NP |
| Pa. | Cumberland* | 9 | M | 6-23 | 6-22 | 1 | I | 0 | P |
| Pa. | Cumberland* | 4 | F | 6-27 | 6-22 | 5 | I | 4 | P |
| Pa. | Cumberland* | 11 | F | 6-27 | 6-26 | 1 | I | 0 | P |
| Pa. | Cumberland* | 6 | F | 6-29 | 6-22 | 7 | I | 0 | P |
| Pa. | Cumberland* | 4 | M | 6-26 | 6-22 | 4 | I | 0 | NP |
| Pa. | Cumberland* | 4 | F | 7-2 | 6-22 | 10 | I | 0 | P |
| Pa. | Luzerne | 29 | M | 9-22 | 9-15 | 7 | I | 0 | P |
| Tenn. | Montgomery | 11 mos. | M | 6-16 | 6-6 | 10 | III | 0 | P |
| Texas | Bexar | 20 | M | 1-25 | 1-13 | 12 | III | 0 | P |
| Wash. | Yakima | 61 | F | 3-17 | 3-3 | 14 | I | 0 | P |
| Wisc. | Chippewa | 18 | M | 3-26 | 3-16 | 10 | I | Unk. | P |
| Wisc. | LaCrosse | 38 | F | 5-4 | 4-21 | 13 | III | 3 | P |

* Epidemic area

Under 30-day OPV Cases with Onsets in 1963 Only
by Age Group and Type of Vaccine Received
(Excluding epidemic areas)

| Age Group | Type of Oral Vaccine Received | | | Total |
|-----------|-------------------------------|----|-----|-------|
| | I | II | III | |
| 0-4 | 1 | 0 | 3 | 4 |
| 5-9 | 0 | 0 | 0 | 0 |
| 10-14 | 1 | 0 | 0 | 1 |
| 15-19 | 1 | 0 | 1 | 2 |
| 20-29 | 2 | 0 | 3 | 5 |
| 30-39 | 0 | 0 | 4 | 4 |
| 40+ | 3 | 0 | 0 | 3 |
| Total | 8 | 0 | 11 | 19 |

V. ENTEROVIRUS SURVEILLANCE

There have been 178 non-poliovirus isolations reported to the Poliomyelitis Surveillance Unit since the last issue of this report (PSU No. 281, October 28, 1963). A total of 425 isolations have now been reported thus far in 1963. These are tabulated by State and presented below.

Non-poliovirus Isolations from 1963 Specimens

| State | ECHO | | | | | Coxsackie | | | | | | Total |
|----------------|------|----|----|----|--------|----------------|----------------|----------------|----------------|----------------|---------|-------|
| | 4 | 9 | 11 | 14 | Other* | A ₉ | B ₁ | B ₂ | B ₃ | B ₅ | Other** | |
| Alabama | - | - | - | - | - | - | 10 | - | - | - | - | 10 |
| California | 28 | 1 | 2 | 4 | 8 | 3 | 13 | - | - | - | 10 | 69 |
| Connecticut | 3 | 2 | 1 | 1 | - | 3 | - | - | 1 | - | - | 11 |
| Georgia | 1 | - | - | - | - | - | 4 | - | - | - | - | 5 |
| Idaho | - | - | - | - | - | - | - | - | 2 | - | - | 2 |
| Illinois | - | 2 | - | - | 4 | 6 | 15 | 1 | 1 | 2 | - | 31 |
| Kansas | - | 1 | 15 | - | 4 | 1 | 18 | - | - | 1 | - | 40 |
| Kentucky | 1 | 11 | - | - | - | - | - | - | 1 | - | - | 13 |
| Louisiana | - | - | - | 1 | 3 | 4 | 4 | 3 | - | - | 6 | 21 |
| Massachusetts | - | 2 | - | - | - | 3 | - | 1 | - | - | - | 6 |
| Michigan | 2 | 6 | - | 1 | 3 | 3 | 4 | - | - | - | - | 19 |
| Minnesota | - | 2 | 6 | 10 | 3 | 6 | 7 | - | - | - | - | 34 |
| Missouri | - | - | - | - | - | - | - | - | - | 1 | - | 1 |
| New Mexico | - | 4 | - | - | - | - | - | - | - | - | - | 4 |
| New York | 3 | 23 | - | 2 | 3 | 24 | - | 2 | - | - | 7 | 64 |
| Ohio | - | 3 | 1 | - | 3 | 2 | 4 | - | 1 | - | - | 14 |
| Oregon | - | 4 | - | - | 2 | - | - | - | - | - | - | 6 |
| Pennsylvania | - | 1 | 1 | - | 1 | - | - | 5 | - | - | 1 | 9 |
| South Carolina | 1 | - | - | - | - | - | - | - | - | - | - | 1 |
| Tennessee | - | - | - | - | - | 1 | 3 | - | 1 | - | - | 5 |
| Texas | - | 7 | - | - | 1 | 5 | 9 | 2 | 1 | - | 2 | 27 |
| Utah | - | - | - | - | - | 1 | - | - | - | - | 2 | 3 |
| Vermont | - | - | - | - | - | - | - | 1 | - | - | - | 1 |
| Virginia | - | - | - | - | - | - | 1 | - | - | - | - | 1 |
| Washington | - | 8 | - | 1 | - | 3 | - | 1 | - | - | 1 | 14 |
| Wisconsin | - | 1 | 1 | 2 | - | - | 3 | 2 | - | - | 5 | 14 |
| TOTAL | 39 | 78 | 27 | 22 | 35 | 65 | 95 | 18 | 8 | 4 | 34 | 425 |

* ECHO virus isolations as follows: Calif.-1E₈, 2E₁₀, 1E₁₃, 1E₁₉, 1E₂₂, 2E₃₁; Ill. 2E₆, 2E₈; Kansas-2E₆, 2E₈; La. 3E₁₇; Mich.-1E₆, 1E₁₅, 1E₂₂; Minn.-2E₅, 1E₆; N.Y.-1E₇, 1E₁₀, 1E₂₃; Ohio-1E₆, 1E₈, 1E₁₅; Oregon-2 ECHO type not determined; Pa.-1E₈; Texas-1E₅.

** Coxsackie virus isolations as follows: Calif.-1A₆, 1A₁₀, 1A₁₆, 7B₄; La.-5A₂, 1B₄; N.Y.-1A₂, 1A₃, 1A₅, 3A₂₃, 1B₄; Pa.-1B₄; Texas-2B₄; Utah-2B₄; Wash.-1B₄; Wisconsin-4A unspecified, 1B₄

VI. POLIOVIRUS ISOLATIONS - 1962

Reports of attempted virus isolations on specimens from 580 poliomyelitis cases with onset during the year 1962 were received by the Poliomyelitis Surveillance Unit of the Communicable Disease Center. This represents isolation attempts from 64 percent of the 909 cases reported to the Poliomyelitis Surveillance Unit.

Of the 580 specimens studied in 1962, 464 or 66 percent yielded a poliovirus. Of those with virus type specified, 344 (74.5%) were Type I and 110 (23.8%) were Type III. Type II was isolated from only 8 cases. The number of specimens studied and the type distribution for the past five years are shown in the following table:

| Year | Total Cases* | Number Studied** | Percent Studied | Poliovirus Type | | | Percent | | |
|------|--------------|------------------|-----------------|-----------------|----|-----|---------|-----|------|
| | | | | 1 | 2 | 3 | 1 | 2 | 3 |
| 1958 | 6,125 | 2,470 | 40 | 1,171 | 36 | 256 | 80.0 | 2.5 | 17.5 |
| 1959 | 8,635 | 4,222 | 49 | 2,464 | 11 | 300 | 88.8 | 0.4 | 10.8 |
| 1960 | 3,304 | 1,595 | 48 | 813 | 2 | 281 | 74.2 | 0.2 | 25.6 |
| 1961 | 1,356 | 735 | 54 | 290 | 6 | 185 | 60.3 | 1.2 | 38.5 |
| 1962 | 909 | 580 | 64 | 344 | 8 | 110 | 74.5 | 1.7 | 23.8 |

* Cases reported as poliomyelitis on preliminary Poliomyelitis Surveillance Case Records.

**Includes all cases on which one or more fecal specimens were examined for virus isolation. State and local health department laboratories and the laboratories in academic centers reported these results through State Epidemiologists to the Poliomyelitis Surveillance Unit.

The table below presents the percentage of specimens studied yielding a poliovirus by final classification of cases as reported to the Poliomyelitis Surveillance Unit from 1958 to 1962. This final classification is based upon a clinical examination sixty days or longer following onset of illness. A markedly higher percentage of virus isolations from paralytic cases with residual paralysis has been consistently observed in all years as shown in the following table.

PERCENT POLIOVIRUS ISOLATIONS BY FINAL CLASSIFICATION

| Percent of Specimens Yielding Poliovirus | | | | | |
|---|------|------|------|------|------|
| Final Classification | 1958 | 1959 | 1960 | 1961 | 1962 |
| Nonparalytic, aseptic meningitis syndrome | 32.7 | 40.3 | 48.7 | 34.7 | 57.6 |
| Paralytic, no residual paralysis | 59.3 | 58.5 | 60.5 | 45.8 | 56.6 |
| Paralytic with residual paralysis | 77.4 | 78.1 | 76.6 | 78.3 | 85.8 |

Of the 683 paralytic cases reported to the Polio Surveillance Unit in 1962, there were 397 poliovirus isolates reported. The geographic breakdown of these isolates was shown in Table IV of Poliomyelitis Surveillance Report No. 277, dated June 7, 1963. Of the Type I isolates, 31 percent were from Texas.

(For a more detailed presentation of poliovirus isolations and the occurrence of poliomyelitis during the years 1958-61, see: Surveillance of Poliomyelitis in the United States, 1958-61. Pub. Health Rep. 77: 1011-1020, December 1962).

**Included all cases on which one or more local specimens were examined for virus isolation. State and local health department laboratories and the laboratories in academic centers reported these results through the State Epidemiologists to the Poliomyelitis Surveillance Unit.

The table below presents the percentage of specimens studied yielding a poliovirus by final classification of cases as reported to the Poliomyelitis Surveillance Unit from 1958 to 1962. This final classification is based upon a clinical examination study or longer following onset of illness. A markedly higher percentage of virus isolations from paralytic cases with residual paralysis has been consistently observed in all years as shown in the following table.

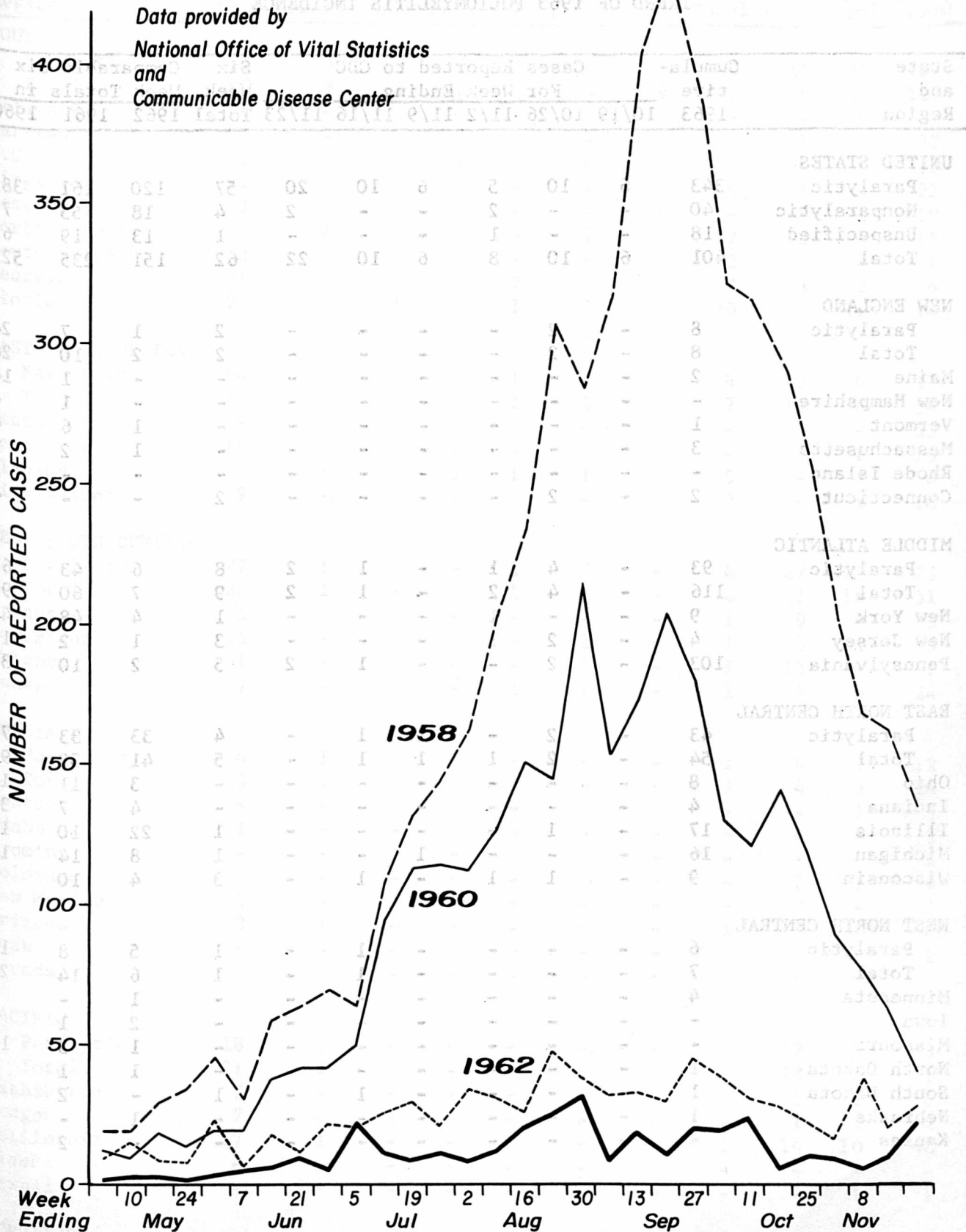
TOTAL

1958 1959 1960 1961 1962

Fig. 1

**CURRENT U.S. POLIO INCIDENCE
Compared with 1958, 1960, and 1962**

Data provided by
National Office of Vital Statistics
and
Communicable Disease Center



TREND OF 1963 POLIOMYELITIS INCIDENCE

[illegible]

[illegible]

Key to all disease surveillance activities are those in each State who serve the function as State epidemiologists. Responsible for the collection, interpretation and transmission of data and epidemiological information from their individual States, the State epidemiologists perform a most vital role. Their major contributions to the evolution of this report are gratefully acknowledged.

STATE

NAME

| | |
|----------------|-------------------------|
| Alabama | Dr. W. H. Y. Smith |
| Alaska | Dr. Edwin O. Wicks |
| Arizona | Dr. Philip M. Hotchkiss |
| Arkansas | Dr. Wm. L. Bunch, Jr. |
| California | Dr. Philip K. Condit |
| Colorado | Dr. C. S. Molloyhan |
| Connecticut | Dr. James C. Hart |
| Delaware | Dr. Floyd I. Hudson |
| D. C. | Dr. William E. Long |
| Florida | Dr. Clarence M. Sharp |
| Georgia | Dr. W. J. Murphy |
| Hawaii | Dr. James R. Enright |
| Idaho | Dr. John A. Mather |
| Illinois | Dr. Norman J. Rose |
| Indiana | Dr. A. L. Marshall, Jr. |
| Iowa | Dr. Ralph H. Heeren |
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| Maine | Mrs. Margaret H. Oakes |
| Maryland | Dr. John H. Janney |
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| Michigan | Dr. George H. Agate |
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| Montana | Dr. Mary E. Soules |
| Nebraska | Dr. E. A. Rogers |
| Nevada | Dr. B. A. Winne |
| New Hampshire | Dr. William Prince |
| New Jersey | Dr. W. J. Dougherty |
| New York State | Dr. Robert M. Albrecht |
| New York City | Dr. Harold T. Fuerst |
| New Mexico | Dr. H. G. Doran, Jr. |
| North Carolina | Dr. Jacob Koomen |
| North Dakota | Mr. Kenneth Mosser |
| Ohio | Dr. Harold A. Decker |
| Oklahoma | Dr. F. R. Hassler |
| Oregon | Dr. Grant Skinner |
| Pennsylvania | Dr. W. D. Schrack, Jr. |
| Puerto Rico | Dr. Rafael A. Timothee |
| Rhode Island | Dr. James E. Bowes |
| South Carolina | Dr. G. E. McDaniel |
| South Dakota | Dr. G. J. Van Heuvelen |
| Tennessee | Dr. C. B. Tucker |
| Texas | Dr. Van C. Tipton |
| Utah | Dr. Elton Newman |
| Vermont | Dr. Linus J. Leavens |
| Virginia | Dr. James B. Kenley |
| Washington | Dr. E. A. Ager |
| West Virginia | Dr. L. A. Dickerson |
| Wisconsin | Dr. Josef Preizler |
| Wyoming | Dr. Helen A. Moore |

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